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MEMORANDUM

TO: Carolyn Eagan, City of Bend
FROM: Owen Ronchelli, RWC
Rick Williams, RWC
Pete Collins, RWC

DATE: October 17, 2016 (v4)

RE: **Downtown Parking Study: Supplemental Data Analysis: *Follow-up to Stakeholder Questions from September 15, 2016 DSAC Meeting***

A. INTRODUCTION

This memorandum provides additional data research and clarification to questions raised by DSAC members during and after their September 15, 2016 meeting. Information provided below addresses DSAC questions within the context of the following theme categories:

- More detailed on-street parking permit data
- More detailed parking garage permit data
- Spring and Summer occupancy heat maps for the 4 survey days (provided in separate emails)

To answer these questions, data from the survey day with the most parking activity was analyzed: Wednesday, July 20, 2016.

B. ON-STREET PERMIT PARKING

Table 1 on the following page provides a summary of Bend's *on-street* parking permit inventory. Both Diamond Parking and the City of Bend issue on-street permits to Downtown employees, but only Diamond issues permits to residents (17% of all permits issued), which are only valid within proximity to their residence. A total of 565 on-street permits are currently in circulation; 471 (83%) are issued to employees and 94 (17%) are issued to residents.

Table 1: On-Street Parking Permit Inventory

On-Street Permit Type	Color Code in Figure E[1]	Number Issued	% of Total
East Area - On-Street (Diamond issued)	Yellow	130	23%
Louisiana - On-Street (Diamond issued)	Green	147	26%
City of Bend Employee Permits – On-Street (City issued)	Green	194	34%
Subtotal On-Street Employees		*471*	83%
Subtotal On-Street Residential	N/A	*94*	17%
Total On-Street Permits		565	100%

Table 2 provides a snapshot of the employee on-street parking permit program. This includes total permits issued, available stalls allowing permit parking, and the 'float' or oversell of permits beyond the available supply.[2] The table also identifies the hour when the highest number of permits (197) were recorded parked during the survey day within the study area.

Table 2: On-Street Parking Permit Program Characteristics

On-Street Permit Program Elements	Value
Total Employee On-Street Permits	471
2 Hour or Otherwise Specified Stalls	242
Permit Sales Float (over sell)[3]	195%
Hour w/ Highest Observed Permit Count	10:30 – 11:30 AM
Highest Observed Permit Count	197

[1] Located on page 5.

[2] Float is a parking industry term that measures the actual number of permits sold to the actual number of stalls available (or built) to serve permit uses. The industry generally assumes a minimum of 115% - 120% float to account for the fact that for every 100 permits sold for parking, 15 to 20 will not be used on a given day because employees are either ill, working short weeks or doing other business. As such, overselling permits to spaces is not uncommon.

[3] Permits sold in relation to the number of stalls available to permit holders. In Bend, these stalls are signed 2 Hours "Unless Otherwise Specified."

Figure A shows how many permits were observed during each hour of the 10-hour study for all stall types.[4] As the Figure illustrates, use of permits is highest in the morning hours and declines in each hour of the operating day (though stays within 30 permits of the peak until 4:00 PM). Usage drops off significantly after 4:00 PM, which is to be expected for the majority of employees working traditional 8:00 AM – 5:00 PM jobs.

Figure A: On-Street Permits Observed by Time of Day

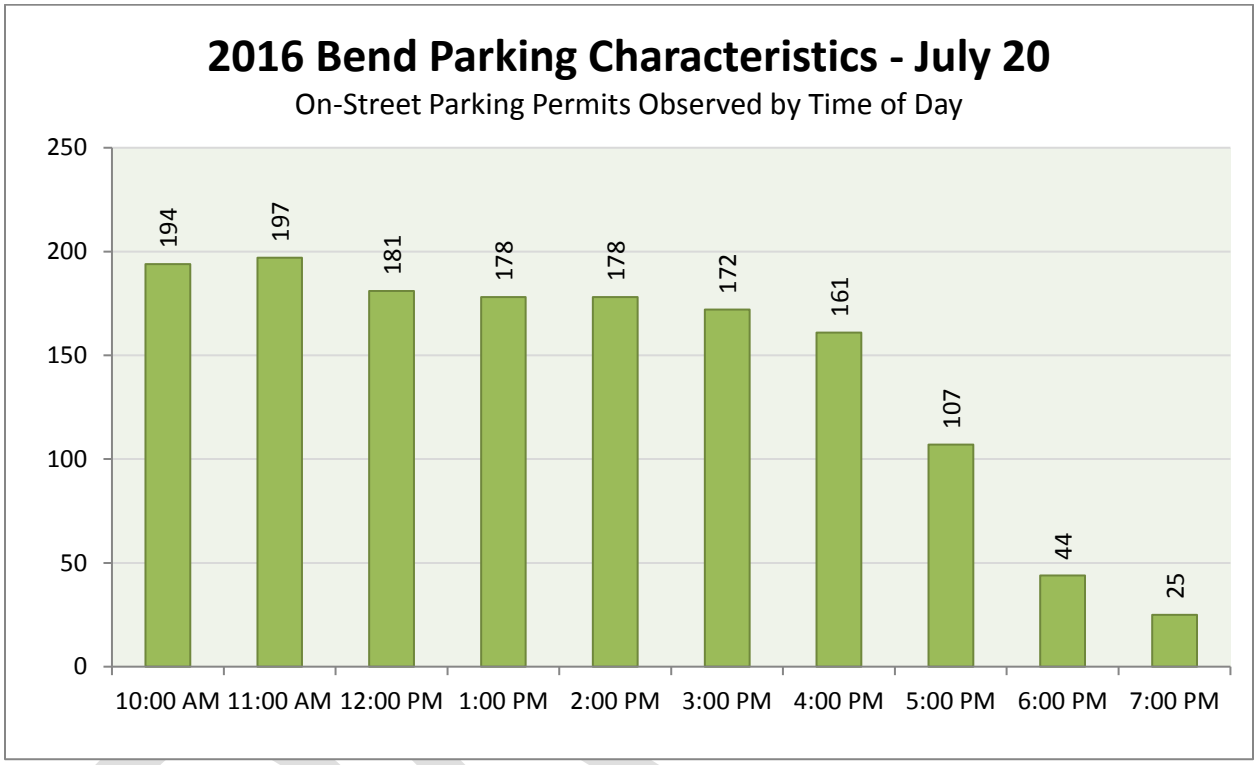


Figure B, next page, provides a visual breakout of Average Length of Stay exhibited by users displaying permits and the type of permit used (i.e., city owned vehicles, ADA placards, employee/residential permits). Approximately 45 permit users only parked for 1 hour, although a majority of these users were displaying an ADA placard. The highest frequency of Average Length of Stay was for 8 hours, with 55 observed users followed by 7 hours, with 45 users (including 1 ADA).

[4] This includes all permits – ADA placards, publicly owned vehicles, employee, and residential.

Figure B: Average Length of Stay Frequency by Permit Users (by Type)

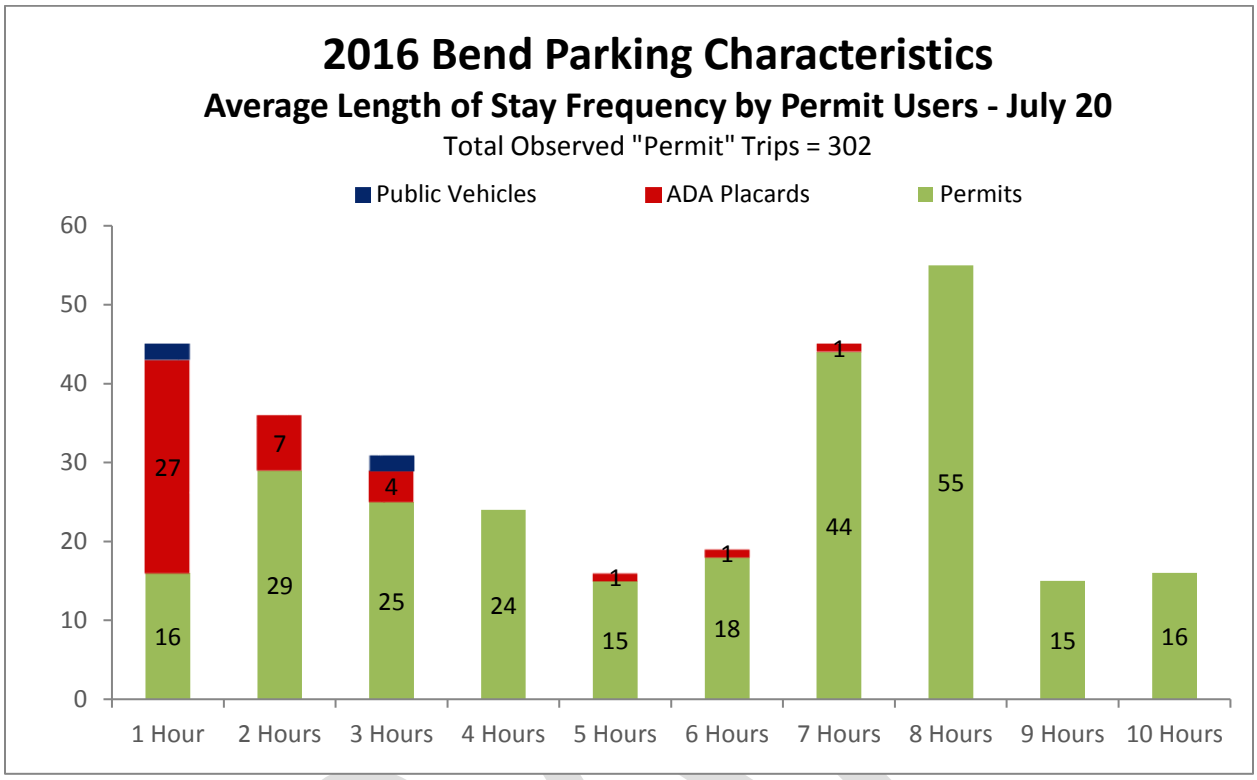


Table 3 shows a side by side comparison of how 2-Hour and 2-Hour Unless Otherwise Specified stalls are used by parkers. Both stall types exhibited similar peak hour occupancies (approx. 76%), but the differences emerge in the average length of stay where permit users increase the average by over 40 minutes. This affects turnover rate and the ability of these stalls to accommodate non-permit (visitor) trips, especially in periods of high parking demand – see Vehicle Trips per Stall. It is also worth noting the volume of permits observed in non-permitted stalls (68) during the late morning 'permit peak.' This would be in stalls signed 2 Hours.

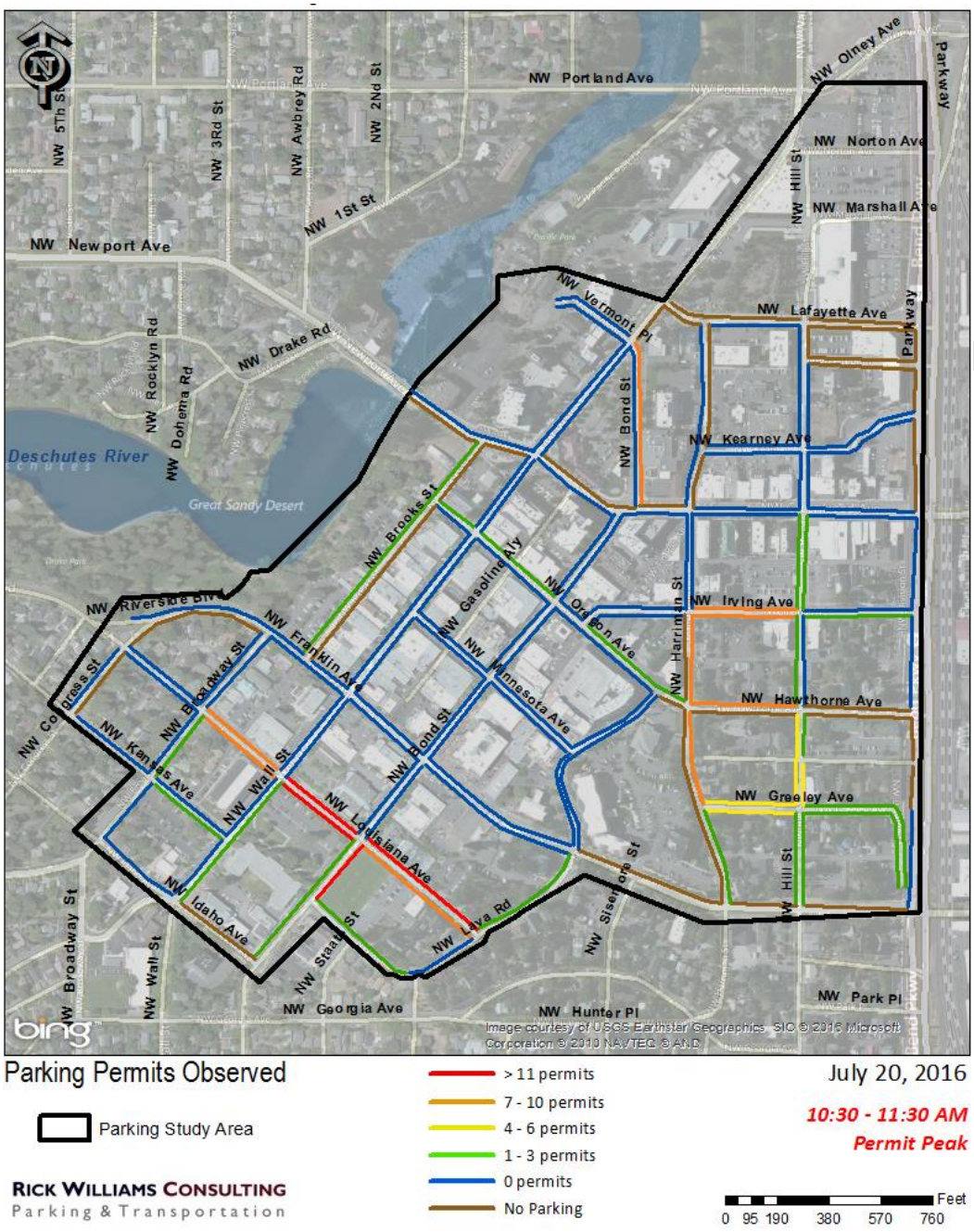
Table 3: Comparative Characteristics of 2-Hour Parking Stalls

Metric	2-Hour	2-Hour Unless Otherwise Specified
Number of stalls	678	242
Peak Hour(s)	12:00 – 1:00 PM 2:00 – 3:00 PM 5:00 – 6:00 PM	2:00 – 3:00 PM
Peak Hour Occupancy	76.5%	75.6%
Average Length of Stay	1 hour, 40 minutes	2 hours, 21 minutes

Metric	2-Hour	2-Hour Unless Otherwise Specified
Turnover Rate	6.02	4.26
Highest Number of Permits Observed (Hour)	68 10:00 – 11:00 AM	96 10:00 – 11:00 AM
Vehicle Trips Accommodated	2,974	700
Vehicle Trips per Stall	4.39	2.89

Figure C shows the geographic distribution of permits observed during the 10:00 AM to 12:00 PM hours when the highest number of permits was documented during the study. Not surprisingly the highest concentrations of permits can be found along Louisiana Avenue, Harrison Street, and the southern end of Bond Street. Despite the numbers of permit users observed in non-permitted stalls, all of them appeared to avoid the central retail core.

Figure C: Frequency of Permit Use by Location



C. OFF-STREET PERMIT PARKING

Table 4 presents an inventory of Bend's *off-street* parking permit program, which totals 504 permits. The majority of permits are issued to users of the City's downtown garage; 77% or 389 permits. Another 86 permits (17%) are issued for use at the Newport Lot (located at the north end of NW Brooks Street and Greenwood Avenue). A total of 29 permits (6%) are sold for use at the Hospital Hill Lot. The Newport Lot has a peak occupancy of only 41%, which does not occur until the dinner hour (6:00 – 7:00 PM); it is underutilized most of the day. As such, additional permits could be sold into this lot without creating a strain on the lot's capacity.

The City's parking garage has a total of 547 stalls and reaches a mid-afternoon (3:00 – 4:00 PM) peak of 68% occupancy, which includes both permit and non-permit users. At this peak hour, the garage has 175 empty parking stalls (all uses)[5]. As with the Newport Lot, capacity for additional permits (or new visitor uses) is available.

Table 4: Off-Street Parking Permit Inventory & Program Characterizes

Off-Street Permit Type	Stalls	Color Code in Figure E (see attachment)	Number Issued	% of Total
Parking Garage	547	Purple	389	77%
Newport Lot	104	Pink	86	17%
Hospital Hill Lot	29[6]	Magenta	29	6%
Total Off-Street Permits			504	100%

Further analysis (using data provided by Diamond Parking) revealed that 734 vehicle used the garage on the survey day. The average length of stay for all garage users (permit and non-permit users) was 3 hours and 30 minutes (see Table 5, next page). An average stay of that length is largely influenced by the number of permit users (average daily use unknown) parking all day.

[5] Detailed information about which type of stall (e.g., visitor, reserved, hotel) is empty is unknown. For example, the data set provided to the consultant does not delineate what percentage of empty stalls are comprised of hotel/valet users or identify the number of empty stalls that are exclusively reserved for visitors (3 Hour parking) or monthly parkers. This type of data could be derived, but would require additional data collection beyond what was scoped for off-street data collection in the approved off-street data collection methodology.

[6] Estimated, verification required

If it were possible to remove or omit permit users from the calculation, the average length of stay would likely be significantly less. This is further evidenced when looking at the distribution of the average length of stay, as shown in Figure D (page 9). Figure D indicates that stays of between 1 and 2 hours (298) make up 41% of all trips in the garage. This indicates that the garage is a parking resource for short-term visitor trips as well as employees using permits.

Table 5 provides off-street permit parking metrics in greater detail.

Table 5: Off-Street Parking Permit Utilization

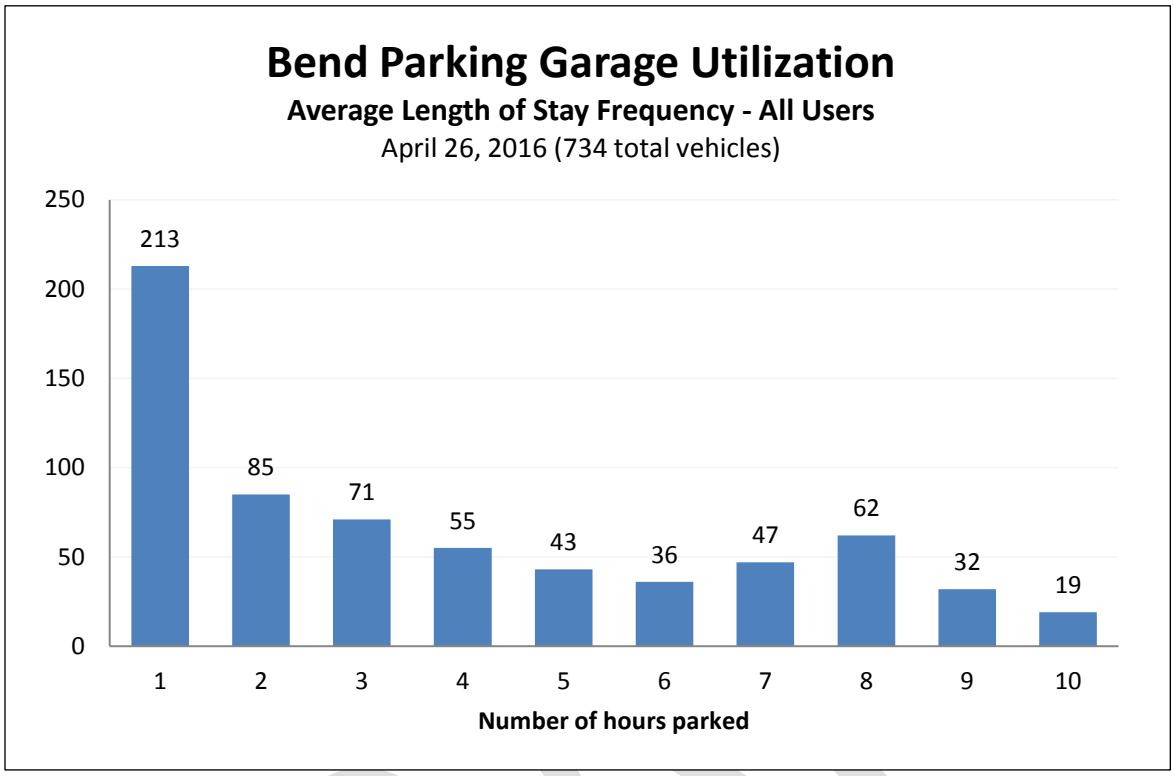
Off-Street Permit Type	Parking Garage	Newport Lot
Stalls	547	104
Permits Issued	389	86
Stalls Available to Permit Holders	350	86
Permit Sales Float	111%[7]	83%
Peak Hour	3:00 – 4:00 PM	6:00 – 7:00 PM
Peak Occupancy	68%	41%
Empty Stalls at Peak Hour	175	61
Average Length of Stay	3 hours, 30 minutes[8]	N/A
Turnover	2.1[9]	N/A

[7] Assumes 350 stalls are available to permit holders

[8] From April 26, 2016 parking study

[9] From April 26, 2016 parking study

Figure D: Parking Garage Average Length of Stay Distribution



D. SUMMARY

Increasing permit usage at off-street facilities, and/or transitioning employees from on to off-street spaces, will require additional discussion with the City and the DSAC as to the purpose and priorities for parking by area and facility. At present (and demonstrated herein), there are a large number employee permits using the on-street system. The City and DSAC should determine whether employee use of the on-street system is detrimental to visitor access and whether moving more employees to off-street locations would be of benefit to downtown on-street businesses.

ATTACHMENT

Figure E provides a visual reference for downtown permit users of where permitted parking zones are currently located and the monthly fees associated with each them.

Figure E: Parking Permit Locations in Downtown Bend